Special Issue

Mathematical Methods for Wave Phenomena

Message from the Guest Editors

This Special Issue, entitled "Mathematical Methods for Wave Phenomena", aims to gather seminal review papers by leading researchers, as well as recent advancements in the application of numerical methods like the Finite Element Method (FEM), Finite Difference Time Domain (FDTD), or Integral Equation (IE) to electromagnetic and other wave phenomena. We invite researchers to submit their contributions to this Special Issue, which aims to provide a comprehensive overview of current trends and future directions in the mathematical modeling of wave phenomena, with a particular focus on electromagnetic waves but also on other types of wave phenomena. The scope of this Special Issue includes, but is not limited to, the following topics:

- Development of basis functions for numerical methods
- Definition of analytical problems for verification and validation
- Development of specific solvers for the training of AI models
- Adaptive refinement and error estimation with methods and the impact of different parameters
- Unconventional approaches to optimize the implementation of mathematical modeling software
- Uncertainty quantification

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About the Journal

Message from the Editor-in-Chief

The journal *Mathematics* publishes high-quality, refereed papers that treat both pure and applied mathematics. The journal highlights articles devoted to the mathematical treatment of questions arising in physics, chemistry, biology, statistics, finance, computer science, engineering and sociology, particularly those that stress analytical/algebraic aspects and novel problems and their solutions. One of the missions of the journal is to serve mathematicians and scientists through the prompt publication of significant advances in any branch of science and technology, and to provide a forum for the discussion of new scientific developments.

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manuscripts are peer-reviewed and a first decision is provided to authors approximately 18.4 days after submission; acceptance to publication is undertaken in 2.4 days (median values for papers published in this journal in the first half of 2025).

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